

**NETWORK INTERFACE SUPPORTING VIRTUAL PATHS FOR  
QUALITY OF SERVICE WITH DYNAMIC BUFFER ALLOCATION**

**ABSTRACT**

[0118] A plurality of virtual paths in a network interface between a host port and a network port are managed according to respective priorities using dynamic buffer allocation. Thus, multiple levels of quality of service are supported through a single physical network port.

5 Variant processes are applied for handling packets which have been downloaded to a network interface, prior to transmission onto the network. The network interface also includes memory used as a transmit buffer, that stores data packets received from the host computer on the first port, and provides data to the second port for transmission on the network. A control circuit in the network interface manages the memory as a plurality of first-in-first-out FIFO queues having  
10 respective priorities. Logic places a packet received from the host processor into one of the plurality of FIFO queues according to a quality of service parameter associated with the packets. Logic transmits the packets in the plurality of FIFO queues according to respective priorities. Logic dynamically allocates the memory using a list of buffer descriptors for corresponding buffers in said memory. The list of buffer descriptors comprises a free buffer list and a used  
15 buffer list for each of the virtual paths served by the system. A used buffer descriptor is released from the used buffer list, after the data stored in the corresponding used buffer has been transmitted, to the free buffer list for a virtual path which has the largest amount traffic or which has the smallest number of free buffers in its free buffer list.